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TEST REPORT

Report No. .... :	**CHTW24120038C2** Report verification:
Project No....................................... :	**SHT2412062002W**
FCC ID .... :	**2AU3A-RWTBT**
Applicant's name .... :	**Good Sportsman Marketing , LLC**
Address...:	5250 Frye Rd, Irving, TX 75061,United States
Product Name .... :	**Razor BT Walkie Talkie**
Trade Mark ....:	WALKER'S
Model/Type reference.......................:	GWP-RZRWT-BT
Listed Model(s) ....:	GWP-RZRWT-BT-XXX (X=A-Z)
Standard .... :	**FCC 47 CFR Part2.1093** **IEEE Std C95.1, 1999 Edition** **IEEE 1528: 2013**
Date of receipt of test sample.........:	Dec. 18, 2024
Date of testing…………………………..:	Dec. 23, 2024
Date of issue…………………………..:	Jan. 23, 2025
Result................. …………………..:	**PASS**

Compiled by (position+printed name+signature)..:	File administrators:Xiaodong Zhao	Xiaodong Zhao
Supervised by (position+printed name+signature)..:	Test Engineer: Xiaodong Zhao	Xiaodong Zhao
Approved by (position+printed name+signature)..:	Manager: Xu Yang	Xu. Yang

Testing Laboratory Name .... :	**Shenzhen Huatongwei International Inspection Co., Ltd**
Address...:	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong, China

The test report merely correspond to the test sample.

Contents

1 . Statement of Compliance

Maximum Reported SAR (W/kg @1g)	
RF Exposure Conditions	FRS
Head(Dist.= 0mm)	0.445

Note:

1. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg@1g) specified in FCC 47 CFR part 2 (2.1093) and IEEE Std C95.1,
2. This device had been tested in accordance with the measurement methods and procedures specified in IEEE 1528 and FCC KDB publications.

2 . Test Standards and Report version

2.1. Test Standards

The tests were performed according to following standards:

FCC 47 Part 2.1093: Radiofrequency Radiation Exposure Evaluation:Portable Devices
IEEE Std C95.1, 1999 Edition: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
IEEE Std 1528™-2013: IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

FCC published RF exposure KDB procedures:
KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04: SAR Measurement Requirements for 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting v01r02: RF Exposure Compliance Reporting and Documentation Considerations
KDB 447498 D04 Interim General RF Exposure Guidance v01: Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies

TCB workshop: April, 2019; Page 19, Tissue Simulating Liquids (TSL)

2.2. Report version

Revision No.	Date of issue	Description
N/A	2024-12-30	Original
C1	2025-01-15	Update the transmitting power of FRS and related results.
C2	2025-01-23	Update the transmitting power of FRS and related results.

3. Summary

3.1. Client Information

Applicant:	Good Sportsman Marketing , LLC
Address:	5250 Frye Rd, Irving, TX 75061,United States
Manufacturer:	K-Mark Industrial Limited
Address:	FLAT A, 7/F., MAI ON IND. BLDG, 17-21 KUNG YIP STREET, KWAI CHUNG, HONG KONG
Factory:	New JinDian Technology (Shenzhen) Ltd.
Address:	Building 1 and 3,No.43,Jinshi Road, Guangpei Community, Guanlan Street, Longhua New District ,Shenzhen City

3.2. Product Description

Product Name:	Razor BT Walkie Talkie
Trade Mark:	WALKER'S
Model No.:	GWP-RZRWT-BT
Listed Model(s):	GWP-RZRWT-BT-XXX (X=A-Z)
Power supply:	DC 4.5V from Battery
Hardware version:	1.0
Software version:	1.0
Device Category:	Portable
Product stage:	Production unit
RF Exposure Environment:	General Population/Uncontrolled
HTW test sample No.:	YPHT24120620001

Note:

1. *The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power.*
2. *All the model are the same circuit and RF module, except model names and appearance color.*

3.3. Radio Specification Description

FRS				
Operation Frequency Range:	462.5625MHz-462.7125MHz 467.5625MHz-467.7125MHz 462.5500MHz-462.7250MHz			
Modulation Type:	FM			
Channel Bandwidth:	12.5kHz			
Antenna Type:	Built-in antenna			
Remark: *1. Because the device supports VOX, the maximum duty cycle supported by the device is 75%.*				
Bluetooth				
Support type:	☒ BR	☒ EDR	☒ BLE-1Mbps	☒ BLE-2Mbps

3.4. Test frequency list

Test Channel	Frequency (MHz)	Frequency band (MHz)
CH4	462.6375	462.5625~462.7125
CH11	467.6375	467.5625~467.7125
CH19	462.6500	462.5500-462.7250

The Product channel frequency table:

Test Channel	Channel No.	Frequency (MHz)	Frequency band (MHz)
01	462.5625	12	467.6625
02	462.5875	13	467.6875
03	462.6125	14	467.7125
04	**462.6375**	15	462.5500
05	462.6625	16	462.5750
06	462.6875	17	462.6000
07	462.7125	18	462.6250
08	467.5625	**19**	**462.6500**
09	467.5875	20	462.6750
10	467.6125	21	462.7000
11	**467.6375**	22	462.7250

3.5. Testing Laboratory Information

Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.	
Laboratory Location	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong, China	
Connect information:	Tel: 86-755-26715499 E-mail: cs@szhtw.com.cn http://www.szhtw.com.cn	
Qualifications	Type	Accreditation Number
	FCC	762235

3.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Ambient temperature	18 °C to 25 °C
Ambient humidity	30%RH to 70%RH
Air Pressure	950-1050mbar

4. Equipments Used during the Test

Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Cal. date (YY-MM-DD)	Due date (YY-MM-DD)
●	Data Acquisition Electronics DAEx	SPEAG	HTWE0313-05	DAE4	1549	2024/04/16	2025/04/15
●	E-field Probe	SPEAG	HTWE0313-06	EX3DV4	7494	2024/11/11	2025/11/10
●	Phantoms	SPEAG	HTWE0313-12	ELI V8.0	2078	N/A	N/A
●	Head TSL	-	-	HSL450	-	N/A	N/A
●	Temperature & humidity	MIAO XIN	HTWE0319	TH20R-EX	-	2024/03/18	2025/03/17
Tissue-equivalent liquids Validation							
●	Dielectric Assessment Kit	SPEAG	HTWE0315-01	DAK-12	1130	N/A	N/A
●	Network analyzer	Keysight	HTWE0331	E5071C	MY46733048	2024/08/27	2025/08/26
●	Thermometer	LKM	HTWE0317	DTM3000	3693	2024/03/18	2025/03/17
System Validation							
●	System Validation Dipole	SPEAG	HTWE0314-02	D450V3	1102	2024/01/24	2027/01/23
●	Signal Generator	R&S	HTWE0276	SMB100A	114360	2024/03/14	2025/03/13
●	Power Viewer for Windows	R&S		N/A	N/A	N/A	N/A
●	Power sensor	R&S	HTWE0278	NRP18A	101010	2024/03/14	2025/03/13
●	Power sensor	R&S	HTWE0389	NRP18A	101386	2024/03/14	2025/03/13
●	Power Amplifier	BONN	HTWE0336	BLWA 0160-2M	1811887	2024/11/08	2025/11/07
●	Dual Directional Coupler	Mini-Circuits	HTWE0335	ZHDC-10-62-S+	F975001814	2024/11/08	2025/11/07
●	Attenuator	Mini-Circuits	HTWE0333	VAT-3W2+	1819	2024/11/08	2025/11/07
●	Attenuator	Mini-Circuits	HTWE0334	VAT-10W2+	1741	2024/11/08	2025/11/07

Note:

The Probe,Dipole and DAE calibration reference to the Appendix E and F.

5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg. The expanded SAR measurement uncertainty must be ⩽ 30%, for a confidence interval of k = 2. If these conditions are met,extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

Therefore, the measurement uncertainty is not required.

6. SAR Measurements System Configuration

6.1. SAR Measurement Set-up

The DASY5 system for performing compliance tests consists of the following items:

A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).

A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.

A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

A unit to operate the optical surface detector which is connected to the EOC.

The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.

The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003.

DASY5 software and SEMCAD data evaluation software.

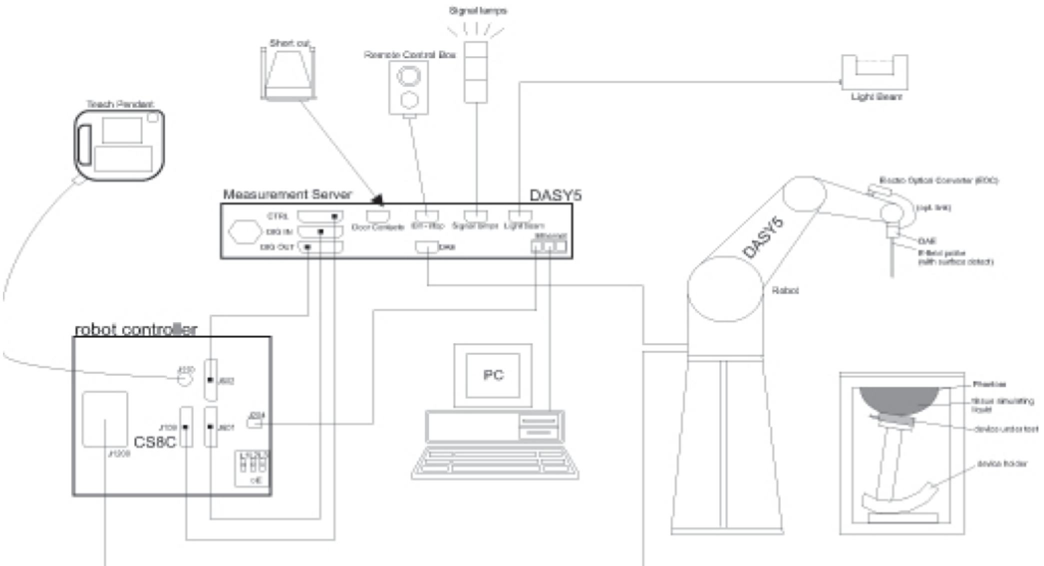
Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.

The generic twin phantom enabling the testing of left-hand and right-hand usage.

The device holder for handheld Mobile Phones.

Tissue simulating liquid mixed according to the given recipes.

System validation dipoles allowing to validate the proper functioning of the system.



6.2. DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

- **Probe Specification**

ConstructionSymmetrical design with triangular core
Interleaved sensors
Built-in shielding against static charges
PEEK enclosure material (resistant to organic solvents, e.g., DGBE)

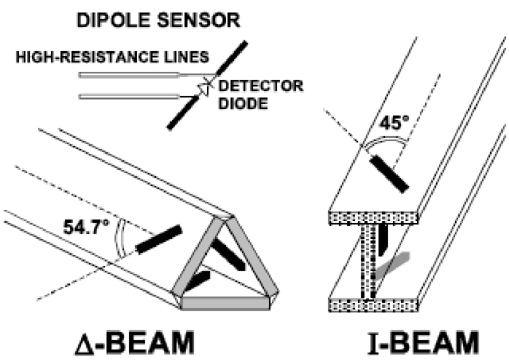
CalibrationISO/IEC 17025 calibration service available.

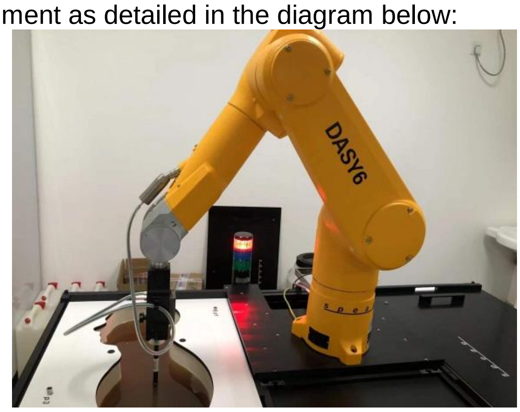
Frequency	10 MHz to 10 GHz; Linearity: ± 0.2 dB (30 MHz to 10 GHz)
Directivity	±0.1 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 10 GHz Dosimetry in strong gradient fields Compliance tests of Mobile Phones
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI

- **Isotropic E-Field Probe**

The isotropic E-Field probe has been fully calibrated and assessed for isotropicity, and boundary effect within a controlled environment. Depending on the frequency for which the probe is calibrated the method utilized for calibration will change.

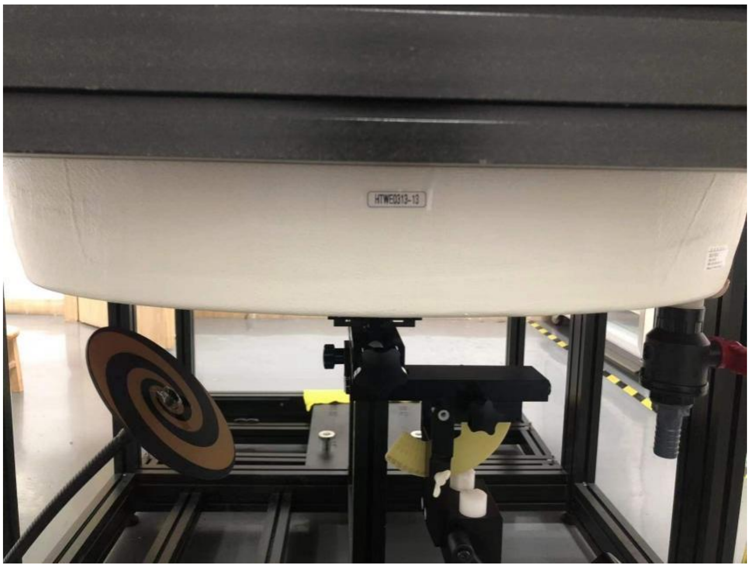
The E-Field probe utilizes a triangular sensor arrangement as detailed in the diagram below:





6.3. Phantoms

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI isfully compatible with standard and all known tissuesimulating liquids. ELI has been optimized regarding its performance and can beintegrated into our standard phantom tables. A cover prevents evaporation ofthe liquid. Reference markings on the phantom allow installation of thecomplete setup, including all predefined phantom positions and measurementgrids, by teaching three points. The phantom is compatible with all SPEAGdosimetric probes and dipoles.



ELI4 Phantom

6.4. Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the DASY system.
The DASY device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.

Device holder supplied by SPEAG

7. SAR Test Procedure

7.1. Scanning Procedure

Step 1: Power Reference Measurement
The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. Measure the local SAR at a test point within 8 mm of the phantom inner surface that is closest to the DUT. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan
The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Resolutions per FCC KDB Publication 865664 D01v04

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 mm ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2)$ mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1g and 10g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Resolutions per FCC KDB Publication 865664 D01v04

<table>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>$\leq$ 2 GHz: $\leq$ 8 mm
2 – 3 GHz: $\leq$ 5 mm*</td><td>3 – 4 GHz: $\leq$ 5 mm*
4 – 6 GHz: $\leq$ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>$\leq$ 5 mm</td><td>3 – 4 GHz: $\leq$ 4 mm
4 – 5 GHz: $\leq$ 3 mm
5 – 6 GHz: $\leq$ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>$\leq$ 4 mm</td><td>3 – 4 GHz: $\leq$ 3 mm
4 – 5 GHz: $\leq$ 2.5 mm
5 – 6 GHz: $\leq$ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$ mm</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>$\geq$ 30 mm</td><td>3 – 4 GHz: $\geq$ 28 mm
4 – 5 GHz: $\geq$ 25 mm
5 – 6 GHz: $\geq$ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.
* When zoom scan is required and the <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 447498 is $\leq$ 1.4 W/kg, $\leq$ 8 mm, $\leq$ 7 mm and $\leq$ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1. The SAR drift shall be kept within ± 5 %.

7.2. Data Storage and Evaluation

Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

Data Evaluation

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	Sensitivity:	Normi, ai0, ai1, ai2
	Conversion factor:	ConvFi
	Diode compression point:	Dcpi
Device parameters:	Frequency:	f
	Crest factor:	cf
Media parameters:	Conductivity:	σ
	Density:	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

Vi: compensated signal of channel (i = x, y, z)
Ui: input signal of channel (i = x, y, z)
cf: crest factor of exciting field (DASY parameter)
dcpi: diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

$$\mathrm{E-fieldprobes:} \qquad E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$

$$\mathrm{H-fieldprobes:} \qquad H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1} f + a_{i2} f^2}{f}$$

Vi: compensated signal of channel (i = x, y, z)
Normi: sensor sensitivity of channel (i = x, y, z), [mV/(V/m)2] for E-field Probes
ConvF: sensitivity enhancement in solution
aij: sensor sensitivity factors for H-field probes
f: carrier frequency [GHz]
Ei: electric field strength of channel i in V/m
Hi: magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1'000}$$

SAR: local specific absorption rate in mW/g
Etot: total field strength in V/m
σ: conductivity in [mho/m] or [Siemens/m]
ρ: equivalent tissue density in g/cm3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid.

8. Dielectric Property Measurements & System Check

8.1. Tissue Dielectric Parameters

The temperature of the tissue-equivalent medium used during measurement must also be within 18℃ to 25℃ and within ± 2℃ of the temperature when the tissue parameters are characterized.
The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3-4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.
The dielectric constant (ε_r) and conductivity (σ) of typical tissue-equivalent media recipes are expected to be within ± 5% of the required target values; but for SAR measurement systems that have implemented the SAR error compensation algorithms documented in IEEE Std 1528-2013, to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, the tolerance for ε_r and σ may be relaxed to ± 10%. This is limited to frequencies ≤ 3 GHz.

Tissue Dielectric Parameters
FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Tissue dielectric parameters		
Target Frequency (MHz)	Head	
	ε_r	σ(S/m)
450	43.5	0.87

IEEE Std 1528-2013
Refer to Table 3 within the IEEE Std 1528-2013

Measurement Results:

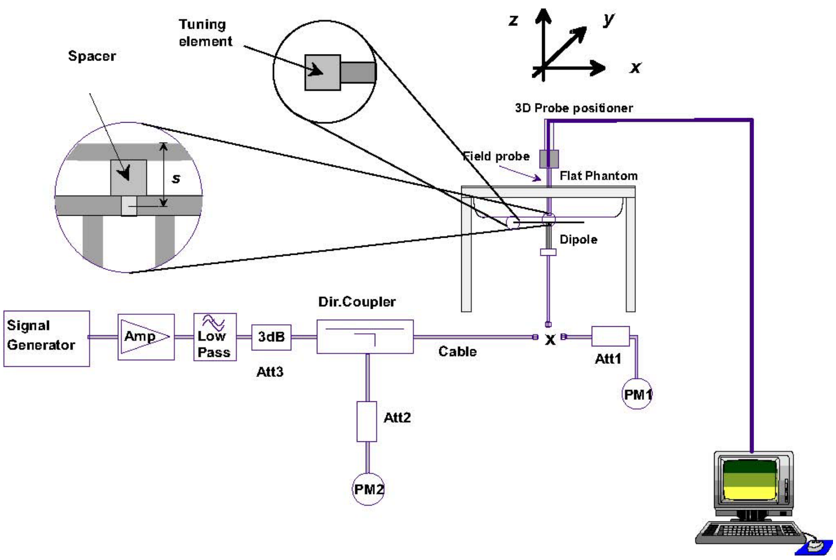
Dielectric performance of tissue simulating liquid									
Frequency (MHz)	ε_r		σ(S/m)		Delta (ε_r)	Delta (σ)	Limit	Temp (℃)	Date
	Target	Measured	Target	Measured					
450	43.50	44.13	0.870	0.882	1.44%	1.38%	±5%	21.3	2024/12/23

8.2. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ⩾15.0 cm for SAR measurements ⩽3 GHz and ⩾10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
  For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- The results are normalized to 1 W input power.



System Performance Check Setup

Photo of Dipole Setup

Measurement Results:

SAR System Check Result											
Frequency (MHz)	1g SAR			10g SAR			Delta (1g)	Delta (10g)	Limit	Temp (℃)	Date
	Target 1W	Normalize to 1W	Measured 250mW	Target 1W	Normalize to 1W	Measured 250mW					
450	4.61	4.68	1.170	3.08	3.08	0.769	1.52%	-0.13%	±10%	21.8	2024/12/23

Note:

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within ±10% of the manufacturer calibrated dipole SAR target.

Plots of System Performance Check

Test Laboratory: Huatongwei International Inspection Co., Ltd.,SAR Lab Date: 12/23/2024

SystemPerformanceCheck-Head 450MHz

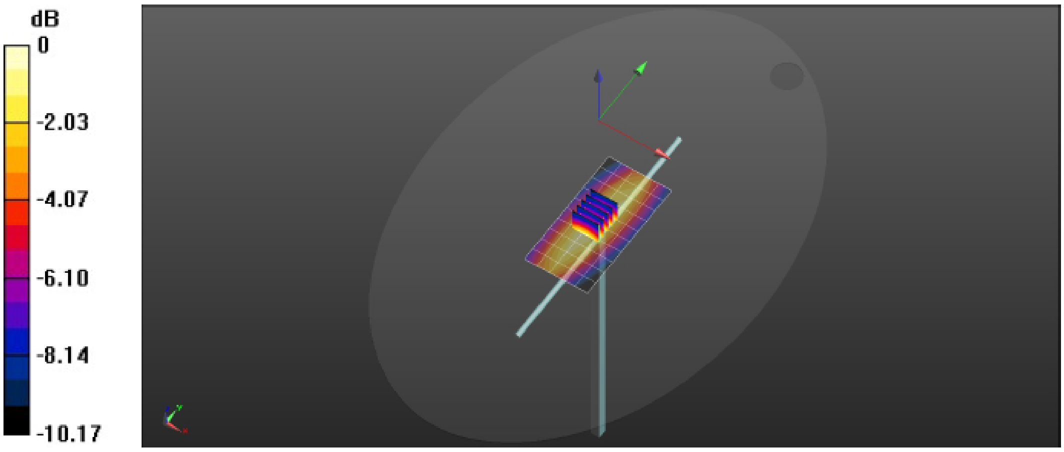
Communication System: UID 0, A-CW (0); Frequency: 450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 450 MHz; σ = 0.882 S/m; ε_r = 44.125; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient Temperature:21.8℃;Liquid Temperature:21.3℃

DASY Configuration:

- Probe: EX3DV4 - SN7494; ConvF(11.32, 11.32, 11.32) @ 450 MHz; Calibrated: 11/11/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1549; Calibrated: 4/16/2024
- Phantom: ELI V8.0 ; Type: QD OVA 004 AA ; Serial: 2078
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Head/d=15mm, Pin=250mW/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.46 W/kg

Head/d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 43.08 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.86 W/kg
SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.769 W/kg
Maximum value of SAR (measured) = 1.59 W/kg



0 dB = 1.59 W/kg = 2.01 dBW/kg

9. SAR Exposure Limits

SAR assessments have been made in line with the requirements of FCC 47 CFR § 2.1093.

Type Exposure	Limit (W/kg)	
	General Population / Uncontrolled Exposure Environment	Occupational / Controlled Exposure Environment
Spatial Average SAR (whole body)	0.08	0.4
Spatial Peak SAR (1g cube tissue for head and trunk)	**1.6**	8.0
Spatial Peak SAR (10g for limb)	4.0	20.0

Population/Uncontrolled Environments: are defined as locations where there is the exposure of individual who have no knowledge or control of their exposure.

Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure (i.e. as a result of employment or occupation).

10. Radiated/Conducted Power Measurement Results and Tune-up

FRS					
Mode	Channel Separation	Frequency		ERP Power (dBm)	Tune-up limit (dBm)
		Channel	MHz		
Analog	12.5kHz	CH4	462.6375	18.92	19.00
		CH11	467.6375	18.73	19.00
		CH19	462.6500	18.84	19.00

Bluetooth					
Mode		Channel	Frequency (MHz)	Conducted Power (dBm)	Tune-up limit (dBm)
BR	GFSK	0	2402	-1.56	-1.00
		39	2441	-1.23	-1.00
		78	2480	-1.15	-1.00
EDR	π/4QPSK	0	2402	-1.10	-0.50
		39	2441	-0.58	-0.50
		78	2480	-0.69	-0.50
	8DPSK	0	2402	-0.69	0.00
		39	2441	-0.41	0.00
		78	2480	-0.45	0.00
BLE 1Mbps	GFSK	0	2402	-1.15	-0.50
		19	2440	-0.90	-0.50
		39	2480	-0.92	-0.50
BLE 2Mbps	GFSK	0	2402	-1.18	-0.50
		19	2440	-0.97	-0.50
		39	2480	-0.95	-0.50

11. RF Exposure Conditions (Test Configurations)

11.1. Antenna Location

Distance of the Antenna to the EUT surface/edge(mm)						
Antenna	Rear	Front	Top	Bottom	Right	Left
FRS#1	35	＜25	40	60	＜25	73
Bluetooth#2	5	5	5	5	5	5

Note:
1. #1: Reference FCC KDB is only tested on sides or surfaces with antenna distances less than 25mm. The Rear side was also tested because it was fitted with headphones.
2. #2: The distance of the Bluetooth antenna is not actually measured, and all are judged according to the minimum 5mm.

12. SAR Measurement Results

SAR Test Reduction criteria are as follows:

- *Reported SAR(W/kg) for WWAN = Measured SAR *Tune-up Scaling Factor*
- *Reported SAR(W/kg) for Wi-Fi and Bluetooth = Measured SAR * Tune-up scaling factor * Duty Cycle scaling factor*
- *Duty Cycle scaling factor = 1 / Duty cycle (%)*

KDB 447498 D04 Interim General RF Exposure Guidance v01:

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- *≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz*
- *≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz*
- *≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz*

FRS（Head）													
Mode	Channel Separation	Test Position	Test distance (mm)	Frequency		ERP Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g)	Report SAR(1g)	75% Duty SAR(1g)	Plot No.
				CH	MHz					(W/kg)	(W/kg)	(W/kg)	
Analog	12.5kHz	Front	0	CH4	462.6375	18.92	19.00	1.019	-0.11	0.567	0.578	0.433	-
			0	CH11	467.6375	18.73	19.00	1.064	-	-	-	-	-
			0	CH19	462.6500	18.84	19.00	1.038	-	-	-	-	-
		Rear (With Headphones)	0	CH4	462.6375	18.92	19.00	1.019	-0.02	0.010	0.010	0.008	-
			0	CH11	467.6375	18.73	19.00	1.064	-	-	-	-	-
			0	CH19	462.6500	18.84	19.00	1.038	-	-	-	-	-
		Right	0	CH4	462.6375	18.92	19.00	1.019	-0.09	0.583	0.594	0.445	1
			0	CH11	467.6375	18.73	19.00	1.064	-0.03	0.541	0.576	0.432	-
			0	CH19	462.6500	18.84	19.00	1.038	-0.12	0.533	0.553	0.415	-

Note:

1. Batteries are fully charged at the beginning of the SAR measurements.

2. SAR Test Data Plots refer to the Appendix D.

Bluetooth SAR estimated

Mode	Frequency (GHz)	Maximum tune-up power		separation distance (mm)	Exemption Threshold (mW)	SAR test exclusion	Estimated SAR (W/kg)
		dBm	mW				
BR/EDR	2.402~2.480	0.00	1.00	5	2.7	Yes	0.593
BLE	2.402~2.480	-0.50	0.89	5	2.7	Yes	0.527

Note:

- *KDB 447498 D04 Appendix B:*

$$P_{\mathrm{th}}\ (\mathrm{mW}) = ERP_{20\ \mathrm{cm}}\ (\mathrm{mW}) = \begin{cases} 2040f & 0.3\ \mathrm{GHz} \le f < 1.5\ \mathrm{GHz} \\ 3060 & 1.5\ \mathrm{GHz} \le f \le 6\ \mathrm{GHz} \end{cases} \quad (\mathrm{B.1})$$

$$P_{\mathrm{th}}\ (\mathrm{mW}) = \begin{cases} ERP_{20\ \mathrm{cm}}(d/20\ \mathrm{cm})^{x} & d \le 20\ \mathrm{cm} \\ ERP_{20\ \mathrm{cm}} & 20\ \mathrm{cm} < d \le 40\ \mathrm{cm} \end{cases} \quad (\mathrm{B.2})$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ \mathrm{cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20\mathrm{cm}}$ is per Formula (B.1).

- *For instance, a given antenna may qualify for a SAR-based exemption according to Section B.4, with Pant < Pth, where Pant is maximum time-averaged power or effective radiated power (ERP), whichever is greater, and Pth is defined in Formula (B.2). Then, per the preceding paragraph, the estimated SAR is computed as SARest =1.6 · Pant / Pth [W/kg].*

13. Simultaneous Transmission analysis

No.	Simultaneous Transmission Configurations	Head	Note
1	FRS + Bluetooth	Yes	
2	FRS + Bluetooth-LE	Yes	

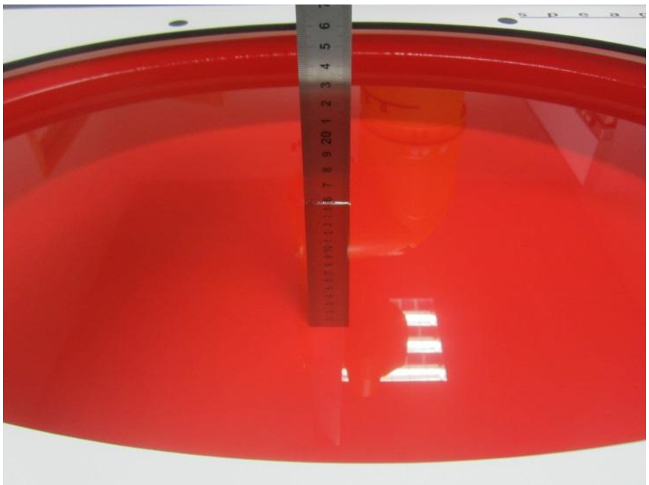
Note:
The reported SAR summation is calculated based on the same configuration and test position.

Simultaneous Transmission data:

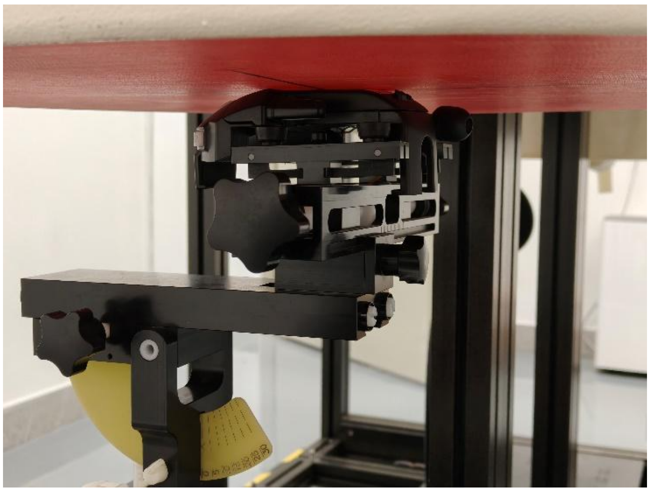
FRS + Bluetooth			
Exposure Position	Max SAR (W/kg)		Summed SAR
	FRS	Bluetooth	(W/kg)
Font	0.433	0.593	1.026
Rear	0.008	0.593	0.601
Right	0.445	0.593	**1.038**

FRS + Bluetooth-LE			
Exposure Position	Max SAR (W/kg)		Summed SAR
	FRS	Bluetooth	(W/kg)
Font	0.433	0.527	0.960
Rear	0.008	0.527	0.535
Right	0.445	0.527	**0.972**

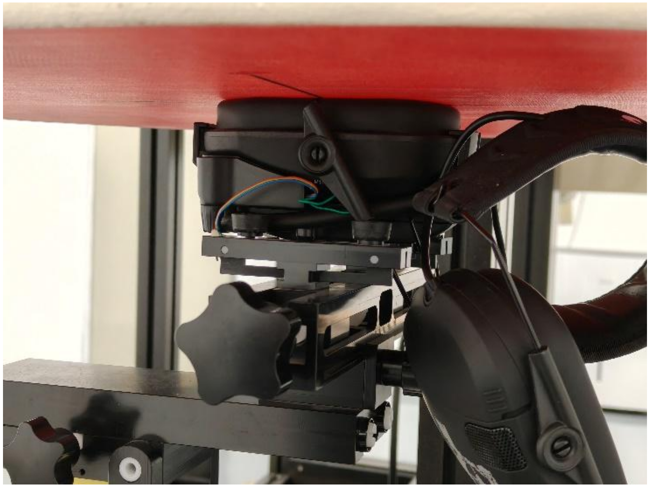
14. Test Setup Photos



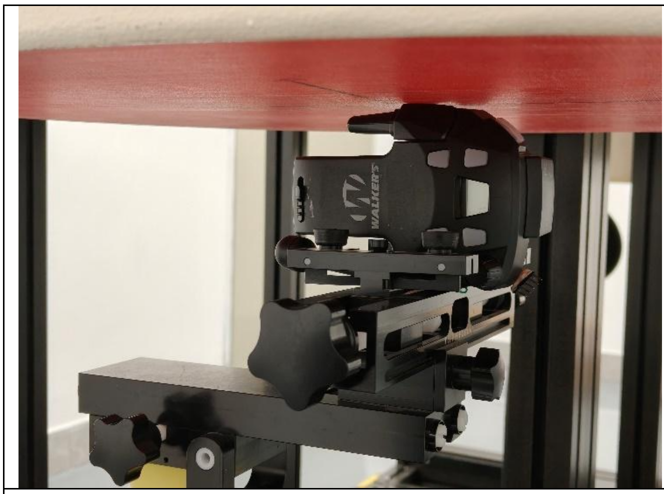
Liquid depth in the ELI Phantom



Front (0mm)



Rear-with headphones (0mm)



Right (0mm)

15. External and Internal Photos of the EUT

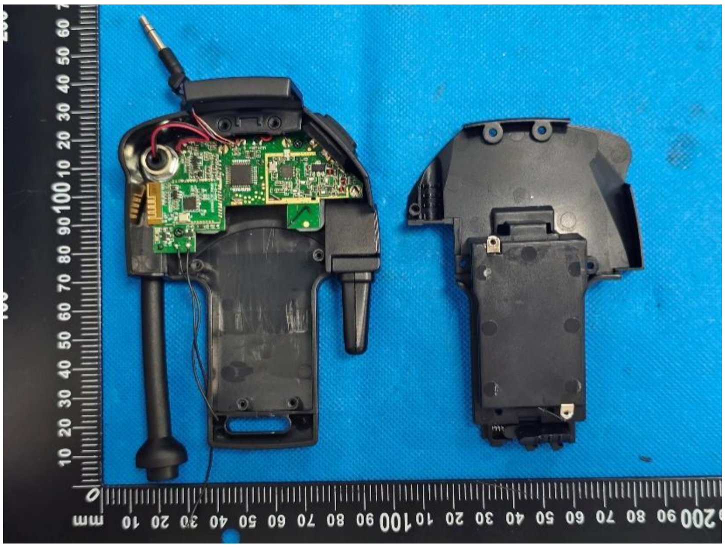
External Photos

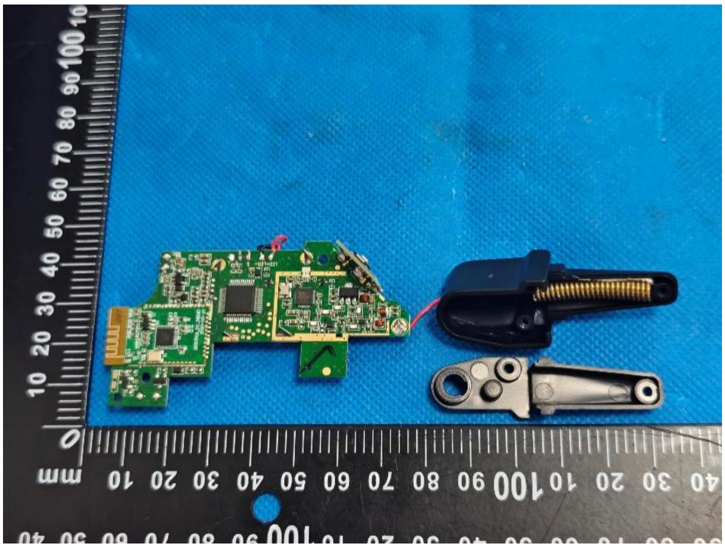

WALKER'S

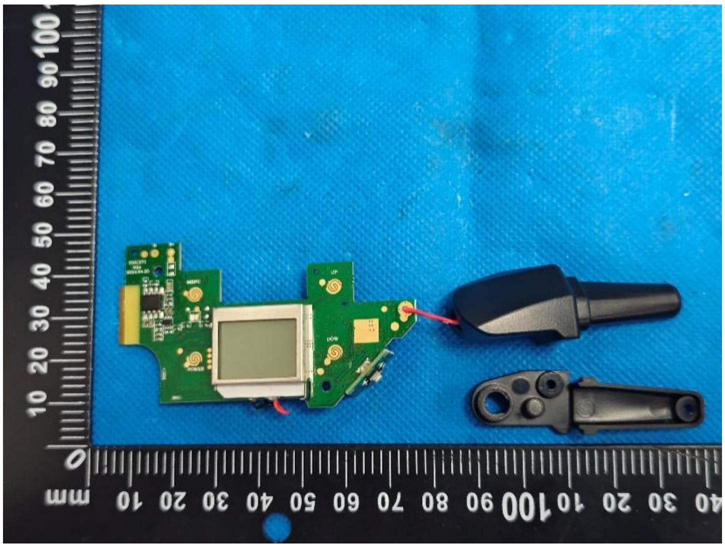

WALKER'S

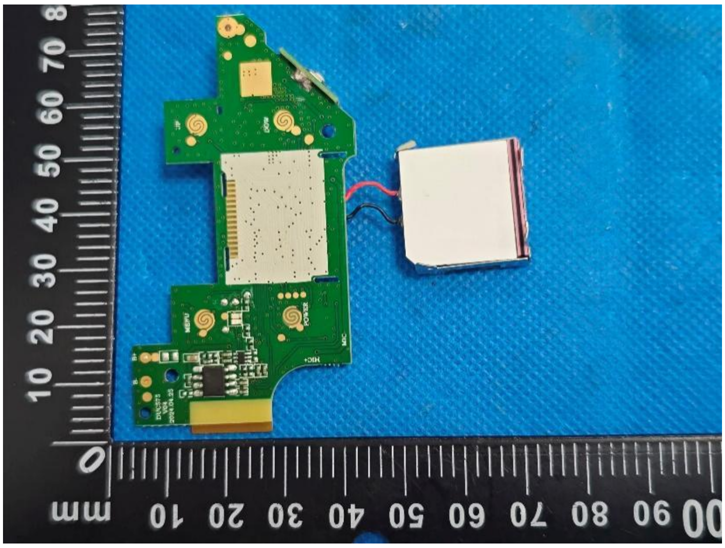

WALKER'S

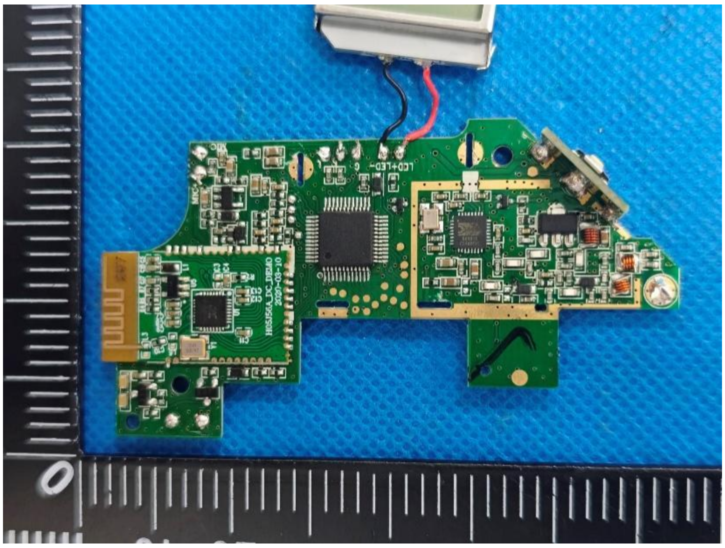
Internal Photos

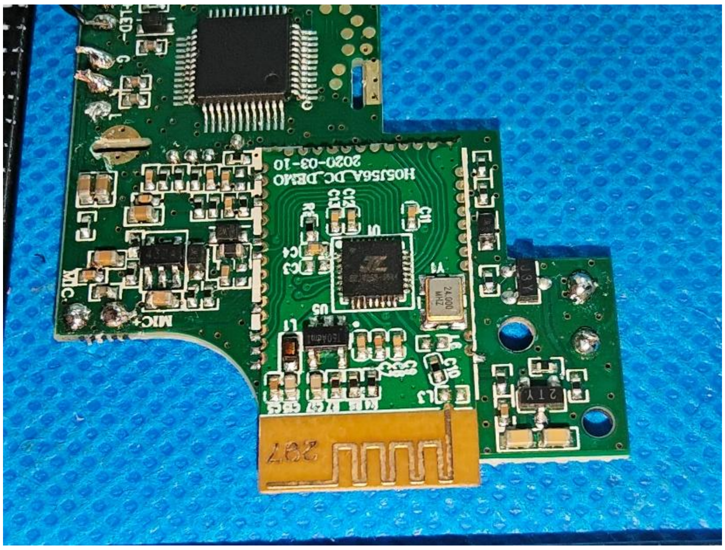


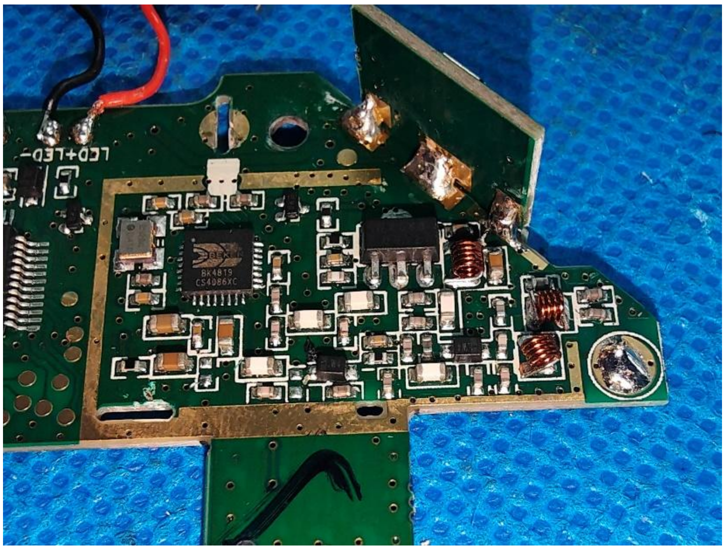












-------------End of Report-------------

Test Laboratory: Huatongwei International Inspection Co., Ltd.,SAR Lab Date: 12/23/2024

Analog-12.5kHz Head

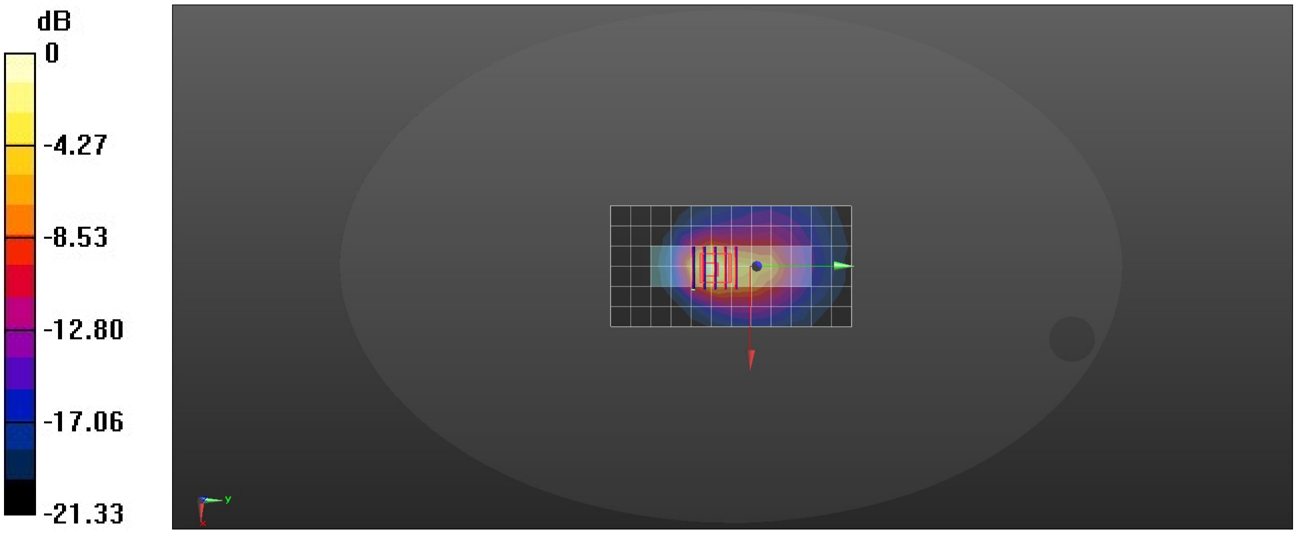
Communication System: UID 0, Analog (0); Frequency: 462.637 MHz; Duty Cycle: 1:1
Medium parameters used: f = 463 MHz; σ = 0.884 S/m; ε_r = 44.056; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient Temperature:21.8℃;Liquid Temperature:21.3℃

DASY Configuration:

- Probe: EX3DV4 - SN7494; ConvF(11.32, 11.32, 11.32) @ 462.637 MHz; Calibrated: 11/11/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1549; Calibrated: 4/16/2024
- Phantom: ELI V8.0 ; Type: QD OVA 004 AA ; Serial: 2078
- DASY52 52.10.2(1495); SEMCAD X 14.6.14(7501)

Right 0mm/CH4/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.21 W/kg

Right 0mm/CH4/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.33 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 2.08 W/kg
SAR(1 g) = 0.583 W/kg; SAR(10 g) = 0.250 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid (> 16 mm)
Ratio of SAR at M2 to SAR at M1 = 61.2%
Maximum value of SAR (measured) = 1.20 W/kg



0 dB = 1.20 W/kg = 0.79 dBW/kg